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SUBJECT: CHEVRON INAUGURATES LARGE SCALE STEAM INJECTION
PILOT PROJECT IN SAUDI-KUWAITI PARTITIONED NEUTRAL ZONE

Summary

¶1. (U) Ambassadors Smith and Jones, and Dhahran Consul General Kenny, participated in the inauguration of Chevron's large scale steamflood pilot project at the Wafra field in the Saudi Arabia-Kuwaiti partitioned neutral zone November 4. Saudi Minister of Petroleum and Mineral Resources Ali Al-Naimi, Kuwaiti Minister of Oil and Information Sheikh Ahmed Al-Sabah, and senior Chevron officials also participated. Saudi Arabian Chevron was presented as a successful company with a 90% Saudization rate (higher than Saudi Aramco). The substantive presentations focused on the project's high technology aspects but acknowledged that not all technical problems have been resolved. This was our first visit to the site since Saudi Arabia renewed Chevron's concession in July 2008, which now will expire in 2039. End summary.

The project

¶2. (SBU) According to Chevron, the Wafra Large Scale Pilot (LSP) project, which began operating in June, is designed to determine the technical and economic viability of thermal-recovery projects in the field's Eocene heavy-oil carbonate (i.e. limestone) reservoir. Steamflooding involves injecting steam into heavy oil reservoirs to heat the crude underground, reducing its viscosity and allowing its extraction through wells. Using this technology in a carbonate reservoir is technically demanding because the rock is naturally fractured making it hard to predict how injected steam or water will affect reservoir pressure, and the use of steam in particular releases chemicals that lead to degradation of oil production equipment. The project is a greenfield site, in an existing field, and at this stage involves 16 injection wells, 25 producing wells, and 16 observation wells, as well as water treatment, and steam generation and distribution facilities. The company hopes that the \$340 million pilot will lead to full-field steamflooding, marking the first commercial application of a conventional steamflood in a carbonate reservoir anywhere in the world. The LSP is over the Wafra field on the Kuwaiti side of the Partitioned Neutral Zone (PNZ), in which the two countries divide the oil revenues jointly.

Inauguration touts Saudi Chevron culture

¶3. (SBU) Saudi Arabian Chevron (SAC) President Ahmed Al-Omer hosted visiting dignitaries and a few hundred Saudi Chevron employees at the event, which took place in a large tent next to the LSP facilities. The program touted Chevron corporate culture, especially its focus on safety, and also showcased

its local subsidiary SAC as a successful model of Saudization (Note: One Chevron manager told us 90% of SAC personnel are Saudi, which is unusually high compared to many Saudi companies and even higher than national oil company Saudi Aramco.)

¶4. (SBU) Chevron states it is the only large international energy company with a continuous upstream presence in Saudi Arabia for more than seven decades. (Note: In addition, Omer and several other managers at the inauguration are holdovers from Getty Oil which operated the onshore PNZ fields under a 60-year agreement renewed for 30 additional years in 2008. Getty was taken over by Chevron in 2001, via Texaco in 1984.)

Chevron VP: heavy oil production
expertise key part of company strategy

¶5. (SBU) George Kirkland, Chevron Executive Vice President for Global Upstream and Gas, said primary recovery from Wafra would only be 5% of the reservoir without this technology. Steamflood will add years, and many millions of barrels, of additional production capacity. Kirkland estimated there are 12 billion barrels of oil in the field's first Eocene layer, so each additional 1% recovery equals 100 million barrels. He estimated Wafra full field development would add an extra billion barrels of recoverable oil. Although Chevron will need to evaluate the results of the LSP before moving to full field implementation, he estimated doing so would create thousands of jobs.

¶6. (SBU) According to Kirkland, developing heavy oil

production expertise is a key part of Chevron's strategy. The world has 4 trillion barrels of extra heavy oil. That's four times conventional reserves, he estimated. In a sandstone reservoir, steamflood technology has demonstrated recovery rates of 50%. Chevron began using steamflood technology in the 1960s at the Kern River field in Bakersfield, California. That field had been producing since the 19th century, and with this technology, Chevron has set a recovery target for the field of an incredible 80%. It used the technology in the Duri field in Indonesia to develop major efficiency gains, also including non-thermal methods. Chevron also developed downstream technologies to handle heavy crude.

LSP success remains uncertain

¶7. (SBU) Project manager Leland Neblitt, noted that in addition to the first Eocene reservoir's 12 billion barrels, a second Eocene reservoir in the field contains an additional 5.4 billion. He emphasized that the technology being piloted has great promise: primary recovery in a field like Wafra can get 5-10% of the oil; water flood can get 15-25%; and steamflood in sandstone can get 50-80%. However, using steamflood technology in Wafra's carbonate (vice sandstone) reservoir remains unproven. Small scale testing in previous years resulted in scaling and corrosion on the pipes, as well as iron sulfide deposits, that might drive up costs sharply or pose technical hurdles to make full field implementation uneconomical.

Saudi oil minister: Project
has "important implications"

¶8. (SBU) In a conversation with Ambassador Smith after the inauguration, Saudi oil minister Ali Al-Naimi praised Chevron's handling of the inauguration and the LSP, noting that the project has several important implications. A number of countries have significant reserves of heavy oil that they cannot produce with available technology. Several companies, like Chevron and Exxon, have experience using steam to produce heavy oil in sandstone, but this will be the first real test of production in limestone. He said the

company's projection that it might be able to increase the current recovery rate from 7% to 20% would have a huge impact. If the three-year trial is successful, Al-Naimi said many other producers would be interested in applying it to their fields, including Saudi Arabia, which has a very similar field offshore in the Red Sea (Hasbah).

¶9. (SBU) Naimi said although serious technical challenges remain, he was very confident based on Chevron's careful planning and extensive coordination with Aramco engineers that the LSP would be successful over its three year period. He relayed that Chevron told him the project would be commercially viable at any price over \$40 per barrel, while Saudi heavy crude was trading at \$7-9 less than the WTI benchmark. Naimi said his Ministry decided that Chevron deserved this project without having to bid on it separately because of its long partnership with the Kingdom, which stretches to the very beginnings of oil production here. He said the two sides had negotiated a very good deal that would work for both.

Comment

¶10. (SBU) Chevron's project is significant not only for potentially adding reserves to Saudi and Kuwaiti capacity, but also for the opportunity to prove a technology that could increase recovery rates in fields in the region and around the world. The fact that Saudi Arabia chose Chevron to pursue this project based on its long history of cooperation in the Kingdom and its clear interest in being a long-term partner is a useful demonstration of the value of continued strong energy ties between the United States and Saudi Arabia. We do not want to make too much of Al-Naimi's comment, although it is noteworthy that he suggested the Kingdom might be interested in applying this technology to other fields beyond the neutral zone, which would be the first foray for IOC's into Saudi oil production since the Saudi upstream oil sector's nationalization.

¶11. (U) Embassy Kuwait cleared this cable.
SMITH